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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,011	08/03/2001	Wolfgang Dannhorn	Mo-6251/WW-5583	9913

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EXAMINER

WHITE, EVERETT NMN 5

ART UNIT PAPER NUMBER

1623

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/923,011

Applicant(s)

DANNHORN ET AL.

Examiner

EVERETT WHITE

Art Unit

1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 & 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities: On page 5, beginning at line 20, the process of Step (a) appears to be directed to preparation of alkalized cellulose instead of alkylated cellulose as suggested. Although, step (a) does recite the presence of alkyl halide in the reaction step, which would produce alkylated cellulose, step (b) suggests that process step (a) produces alkalized cellulose (or alkalised cellulose). However, Step (c) of the process appears to set forth the step that produces the alkyl moiety of cellulose. If alkalized cellulose is produced in step (a), then the term "alkylating cellulose" which is recited at the beginning of step (a) should be changed to - -alkalizing cellulose - -.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Step (a) of Claim 1 appears to be directed to preparation of alkalized cellulose. Although, step (a) does recite the presence of alkyl halide in the reaction step, which would produce alkylated cellulose, step (b) suggests that process step (a) produces alkalized cellulose (or alkalised cellulose). Step (c) of Claim 1 appears to set forth the step that produces the alkyl moiety of cellulose. If alkalized cellulose is produced in step (a), then the term "alkylating cellulose" which is recited at the beginning of step (a) should be changed to - -alkalizing cellulose - -. Step (a) as currently written along with step (b) is confusing and is seen to render the claim indefinite. Claims 2-7 are also rejected since these claims depend from Claim 1 and do not correct this indefiniteness and ambiguity, regarding the procedural steps Applicants regard as the invention.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breckwoldt (US Patent No. 5,166,333) in view of Reibert et al (US Patent No. 6,235,893).

Applicants claim a process for preparing alkylhydroxyalkyl cellulose comprising the steps of (a) alkalizing cellulose with an aqueous caustic solution containing from 1.5 to 5.5 equivalents of alkali metal hydroxide per anhydroglucose unit (AGU) of said cellulose, in the presence of a suspension agent which contains alkyl halide in an

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amount of from (equivalents of alkali metal hydroxide per AGU minus 1.4) to (equivalents of alkali metal hydroxide per AGU plus 0.8); (b) reacting the alkalized cellulose of step (a) with one or more alkylene oxides at a temperature higher than 65°C; (c) adding alkyl halide, to the product of step (b) at a specific equivalent amount; (d) isolating the alkylhydroxyalkyl cellulose from the reaction mixture of step (c); and (e) optionally purifying the isolated alkylhydroxyalkyl cellulose. Additional limitations in the dependent claims include dimethyl ether as the suspension agent, specific alkyl halides, a weight ratio range of dimethyl ether to methyl chloride, specific alkylene oxides, a temperature range of 65 to 110°C for steps (b) and (c); and recitation that the alkylhydroxyalkyl cellulose that is prepared is methylhydroxypropyl cellulose.

The Breckwoldt patent discloses in Example 1 thereof a process for preparing methyl hydroxypropyl cellulose that comprises alkalizing 121.5 g of finely ground chemical wood pulp with 120 g 50% sodium hydroxide in an autoclave at room temperature. 152 g propylene oxide is added to the alkali cellulose. The temperature in the autoclave is slowly increased to 80°C. After cooling of the reactor 180 g sodium hydroxide and 12 mol methyl chloride per mol cellulose are introduced into the reaction vessel and the reactor is heated to 80°C for 60 minutes. After 3 hours, the methyl hydroxypropyl cellulose is freed from secondary products by washing with hot water and dried. The reactants disclosed in the Breckwoldt patent and the amount of the reactants disclosed in the Breckwoldt patent embraces the reactants and the equivalent amounts disclosed in the instant claims. See column 2, 8 paragraph, wherein alkalization of the cellulose may be carried out in the presence of organic solvents that may be selected as ethers containing 2 to 4 carbon atoms, which include dimethyl ether which is set forth in the instant claims as a suspension agent. The instant claims differ from the Breckwoldt patent by reciting the presence of an alkali halide in step (a) of the claimed process during the alkalization of the cellulose. However, the Reibert et al patent shows that the presence of alkyl halide during the alkalization of cellulose is known in the art. See Example 1 of the Reibert et al patent wherein a mixture of dimethyl ether and methyl chloride is present during the alkalization of cellulose. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in

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the process for preparing methylhydroxypropyl cellulose of the Breckwoldt procedure that involves the alkalization of cellulose in the presence of an alkali halide in view of the recognition in the art, as suggested by the Reibert et al patent, that the presence of an alkali halide in the alkalization procedure enhances the gel strength of the cellulose ether. The motivation to use the process for preparing alkylhydroxyalkyl cellulose is to enhance the gel strength of the cellulose ether.

### **Summary**

6. All the claims are rejected.

### **Examiner's Telephone Number, Fax Number, and Other Information**

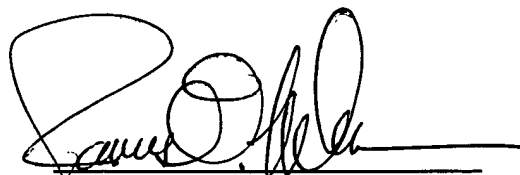
7. For 24 hour access to patent application information 7 days per week, or for filing applications, please visit our website at [www.uspto.gov](http://www.uspto.gov) and click on the button "Patent Electronic Business Center" for more information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Everett White whose telephone number is (703) 308-4621. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, can be reached on (703) 308-4624. The fax phone number for this Group is (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

  
E. White

  
James O. Wilson  
Supervisory Primary Examiner  
Technology Center 1600